

PLASMA DETEMPLATING AND SILANOL CAPPING OF POROUS DIELECTRIC FILMS

ABSTRACT

5 Methods of preparing a low-k dielectric material on a substrate are provided. The
methods involve using plasma techniques to remove porogen from a precursor layer
comprising porogen and a dielectric matrix and to protect the dielectric matrix with a silanol
capping agent, resulting in a low-k dielectric matrix. Porogen removal and silanol capping
can occur concurrently or sequentially. If performed sequentially, silanol capping is
10 performed without first exposing the dielectric matrix to moisture or ambient conditions.